

STATEMENT OF QUALIFICATIONS

Name of Lab: Scientific Crime Detection Laboratory
5500 E. Tudor Road
Anchorage, AK 99507

Date: January 6, 2009

Name: Robert J. Shem

Job Title: Criminalist III

Discipline(s): Indicate all areas in which you do casework.

Firearm Identification
Toolmark Identification
Muzzle-to-Target Distance Determinations
Shooting Incident Reconstructions
Ballistics Testing
Physical Matching
Serial Number Restoration

Education: List all higher academic institutions attended.

| Institution | Dates attended | Major | Degree completed |
|---------------------------------------------|----------------|---------|------------------|
| Southern Illinois University- Carbondale | 1977-1979 | Zoology | B.S |
| Joliet Junior College | 1975-1976 | Biology | A.S. |

Other Training: List continuing education, workshops, in-service and other formal training received.

Graduated from a two-year training program in Forensic Firearm and Toolmark Identification conducted by the Illinois Department of State Police Training and Applications Laboratory at Joliet, IL. The course was completed ahead of schedule due to proficiency, from August 1980 to April 1982. This training included all facets of Forensic Firearm and Toolmark Identification to include: classroom instruction, independent study, microscope handling, report wording, tours of gun, ammunition, and lock factories, report writing, courtroom testimony, supervised casework, etc.

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|--------------------------------|------|------|------|------|------|------|
| AFTE Annual Training Seminars: | 1981 | 1991 | 1995 | 1999 | 2003 | 2007 |
| | 1987 | 1992 | 1996 | 2000 | 2004 | 2008 |
| | 1988 | 1993 | 1997 | 2001 | 2005 | |
| | 1990 | 1994 | 1998 | 2002 | 2006 | |

Armorer's schools:

- Smith & Wesson
- Glock
- Remington
- Beretta
- Ruger
- Colt

1989: Specialized Techniques in Firearm Identification, FBI Training Academy, Quantico, Virginia (1 week)

Footwear Impression Processing, MAFS school, Springfield, Illinois (1 week)

Footwear/Tiretrack Training Program, Illinois Department of State Police, Carbondale, Illinois (2 weeks)

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Other Training: (continued)

- 1992: Gunpowder and Primer Residues, FBI Training Academy, Quantico, Virginia (1 week)
- 1994: Ballistic Measurement Workshop, Oehler Research, Inc. Testing Range, Fredericksburg, Texas (1 week)
- 1996: Shooting Crime Scene Processing and Reconstruction Seminar, FBI Training Academy, Quantico, Virginia (3 days)
- 1997: Quality Assurance in the Laboratory, FBI Training Academy, Quantico, Virginia (5 days)
- 1998: Laboratory Accreditation Inspector School, American Society of Crime Laboratory Directors, Laboratory Accreditation Board (ASCLD/LAB), Minneapolis, MN (4 days)
- 2003: Forensic Digital Imaging, Imaging Forensics, George Reis, Anchorage, Alaska (3 days)
- 2005: NIBIN Image Acquisition Training, Forensic Technologies, Largo, FL (5 days)
- 2005: Forensic Video Examinations on the dTect System, Ocean Systems, Laurel, MD (4 days)
- 2008: Gunshot Residue Analysis: Interesting Scenarios & Problems Encountered Workshop, AFTE Seminar, John Webb, Honolulu, HI (3 hours)
- 2008: Expert Witness Testimony Techniques, Ron Smith & Associates, Inc., Ron Smith, Anchorage, AK (2 days)
- 2008: Gunpowder and Gunshot Residue School, FBI, John Webb, Spokane, WA (4 days)

Courtroom Experience: List the discipline(s) in which you have qualified to testify as an expert witness and indicate over what period of time and approximately how many times you have testified in each.

1980-present: Has presented expert testimony in excess of 200 times in the state and federal courts of Alaska and Illinois.

Professional Affiliations: List any professional organizations of which you are or have been a member. Indicate any offices or other positions held and the date(s) of these activities.

Chairman, Vendor Committee, AFTE Training Seminar 2008
Advisory Committee, AFTE 2004-2008
Chairman, Advisory Committee, AFTE 2003-2004
President, Board of Directors, AFTE 2002 - 2003
First Vice President, Board of Directors, AFTE, 2001-2002
Second Vice President, Board of Directors, AFTE, 2000-2001
Member, Steve Molnar/Key Person Award Committee, AFTE, 1998-2000
Chairman, Board of Admissions, 2001-2002
Member, Scientific Working Group of Firearm and Toolmark Examiners, 1999-2006

Officer, Board of Admissions, AFTE, 1993-1995, 2000-2001
Member, Research & Development Committee (Ad-hoc), AFTE, 1999-2001
Member, Glossary Sub-Committee, (ad-hoc), AFTE, 1999-2001
Member at Large, Board of Directors, AFTE, 1998-2000
Member, Midwestern Association of Forensic Scientists (MAFS)
Member, Association of Firearm and Tool Mark Examiners (AFTE), life-paid
Member, Northwest Association of Forensic Scientists (NWAFS)

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Employment History:

List all scientific or technical positions held, particularly those related to forensic sciences. List current position first. Give a brief summary of principal duties and tenure in each position.

- (1) Job Title: Criminalist III
Employer: Alaska Department of Public Safety Scientific Crime Detection Laboratory
Anchorage, Alaska
Principal Duties: Firearm Identification
Toolmark Identification
Muzzle-to-Target Distance Determination
Shooting Incident Reconstruction
Ballistics Testing
Physical Matching
Serial Number Restoration
Tenure: 11/86 - present
- (2) Job Title: Forensic Scientist (I, II & III)
Employer: Illinois Department of State Police
Maywood and Fairview Heights, Illinois
Principal Duties: Firearm Identification
Toolmark Identification
Muzzle-to-Target Distance Determinations
Physical Matching
Serial Number Restoration
Tenure: 1982 - 1986
- (3) Job Title: Forensic Scientist Trainee
Employer: Illinois Department of Law Enforcement
Joliet, Illinois
Principal Duties: Received training to prepare for journeyman's position.
Tenure: 1980 - 1982

Other Qualifications:

List below any scientific publication and/or presentation you have authored or co-authored, research in which you are or have been involved, academic or other teaching positions you have held, and any other information which you consider relevant to your qualification as a forensic scientist.

INSTRUCTOR CERTIFICATION:

Alaska Police Standards Council Certified Police Instructor: Firearms (expired)
Toolmark Identification (expired)
Crime Lab Utilization (expired)

ASCLD/LAB Laboratory Accreditation Inspector

Member, New York City Crime Lab ASCLD/LAB Inspection Team, 1999
Member, Indiana State Police Lab system ASCLD/LAB Inspection Team, 2007

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Other Qualifications: (continued)

PROFICIENCY:

Randomly selected completed cases were reviewed for quality by the Illinois Firearm/Toolmark Training and Applications Coordinator from 1980 until the mid-1980's when this duty was taken over by the Illinois Firearm/Toolmark Quality Assurance Coordinator until December 1986. From December 1986 until present, participated in the Collaborative Testing Services Firearms and Toolmarks Proficiency Examinations. From December 1986 until present participated in the NWAFFS Firearms Proficiency Tests. Designed, assembled, distributed, compiled, and analyzed the October 1991 and October 1992 NWAFFS Firearms Proficiency Tests.

AWARDS: Governor's Commendation, 1993
Crime Laboratory Employee of the Year, 1992
Distinguished Member, AFTE, 1988
Certificate of Commendation, Illinois Dept. of Law Enforcement, 1983
University High Honors, SIU, 1979
Phi Beta Kappa, SIU
Liberal Arts and Sciences Honor Society, SIU

INVENTIONS & U.S. PATENTS:

U.S. Patent Number 5,348,759, **Apparatus For Cyanoacrylate Fingerprint Development and Method Of Use Therefore**, co-invented with David E. Weaver, Everett Clary, and George M. Taft, Jr., September 20, 1994.

U.S. Patent Number 5,424,092, **Apparatus For Cyanoacrylate Fingerprint Development and Method Of Use Therefore**, co-invented with David E. Weaver, Everett Clary, and George M. Taft, Jr., June 13, 1995.

PUBLICATIONS & SCIENTIFIC PRESENTATIONS:

"An Experimental Silencer For a Charter Arms AR-7 Explorer Rifle," AFTE Journal, October 1982, Vol. 14, No. 4, Pp 46-9.

"Comparison of 501 Consecutively Fired Bullets and Cartridge Cases From a 25 Caliber Raven Pistol," AFTE Journal, July 1983, Vol. 15, No. 3, Pp 109-12, co-authored with Peter P. Striupaitis.

"Fireformed Chamber Striations on Rimfire Cartridge Cases," AFTE Journal, July 1987, Vol. 19, No. 3, Pp 282-3.

"Fireformed Chamber Striations on Rimfire Cartridge Cases," AFTE Seminar, June 1988, Seattle, WA.

"The Relationship of a Bullet Jacket to Its Core," AFTE Seminar, June 1990, Omaha, NE.

"Primer Residues: Why Are We Wasting Our Time?" NWAFFS Seminar, May 1991, Anchorage, AK.

"Recovering High Powered Rifle Bullets at Full Velocity Without Damage," AFTE Seminar, June 1991, Houston, TX.

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Other Qualifications: (continued)

PUBLICATIONS & SCIENTIFIC PRESENTATIONS: (continued)

"The Pathological and Firearm Identification Aspects of Mag-Na-Port," AFTE Journal, October 1991, Vol. 23, No. 4, Pp 903-7, co-authored with Donald R. Rogers, M.D.

"Firing Pin Striations," AFTE Journal, October 1991, Vol. 23, No. 4, Pp 968-9.

"Expert Witnesses Who Give Questionable Courtroom Testimony," AFTE Seminar, April 1992, Miami, FL.

"Patina Patterns on Brass Cartridge Cases," AFTE Journal, April 1992, Vol. 24, No. 2, Pp 160-1.

"Factory Installed Trace Material on Bullets and Cartridge Cases," AFTE Journal, July 1992, Vol. 24, No. 3, Pp 244-5.

"Preserving Trace Evidence from Blood Extracted Garments," AFTE Journal, July 1992, Vol. 24, No. 3, Pp 304-5.

"Wounds Caused by Contact with Muzzle-Lift Relief Ports (Mag-Na-Port)," American Journal of Forensic Medicine and Pathology, Vol. 13, No. 4, 1992, Pp 284-287, co-authored with Donald R. Rogers, M.D.

"The Vaporization of Bullet Lead by Impact," AFTE Journal, April 1993, Vol. 25, No. 2, Pp 75-8.

"Modifying Mushroomed Bullet Jackets to Facilitate Comparisons," AFTE Journal, April 1993, Vol. 25, No. 2, Pp 149-50.

"Computer Enhanced Infrared Videography for the Examination of Clothing Items Containing Gunpowder Residue Patterns," AFTE Seminar, May 1993, Raleigh, NC.

"Cartridge Caliber Conversions," AFTE Journal, July 1993, Vol. 25, No. 3, Pp 209-13.

"Another Source of Lead Particulates Found in Clothing Examined for Muzzle-to-Garment Distance Determinations," AFTE Seminar, June 1994, Indianapolis, IN.

"Bleeding as a Source of Lead Particulates on Clothing," AFTE Journal, October 1994, Vol. 26, No. 4, Pp 269-75.

"Bleeding as a Source of Lead Particulates on Clothing," American Journal of Forensic Medicine and Pathology, Vol. 16, No. 2, 1995, Pp 127-31.

"Exceeding the Practical Limits in Shooting Incident Reconstructions," Federal Bureau of Investigation Shooting Crime Scene Processing and Reconstruction Seminar, September 1996, Quantico, VA.

"When Experts Go Beyond Scientific Objectivity in Crime Reconstructions," District Attorney's Annual Training Conference, November 1997, Girdwood, AK.

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Other Qualifications: (continued)

PUBLICATIONS & SCIENTIFIC PRESENTATIONS: (continued)

“The Physics of Firearms,” Dimond High School Physics Class, Colleen Tysinger, instructor, January 1998, Anchorage, AK.

“Computerized Worksheets for Firearm and Toolmark Examiners,” AFTE Seminar, June 1998, Tampa, FL.

“Understanding the Work Product of the Firearms Expert,” The 1999 Alaska Investigators Conference, September 1999, Anchorage, AK.

“How Alaskans Kill,” The 2001 Left Coast Crime Conference, February 2001, Anchorage, AK.

“A Simplified Griess and Sodium Rhodizonate Test,” AFTE Journal, Winter 2001, Vol. 33, No. 1, Pp 37-9.

“Understanding the Work Product of the Firearms Expert,” The 2008 Alaska Investigators Conference, April 2008, Girdwood, AK.

WORKSHOPS

A Simplified Protocol for the Examination of Materials that Possess Gunshot Discharge Products, NWAFS Seminar, Spokane, WA – ~10 students

A Simplified Protocol for the Examination of Materials that Possess Gunshot Discharge Products, AFTE Seminar, Indianapolis IN, Tuesday, June 21, 2005 and Wednesday, June 22, 2005 – 40 students

A Simplified Protocol for the Examination of Materials that Possess Gunshot Discharge Products, AFTE Seminar, Springfield MA, Tuesday, June 27, 2006 – 20 students